

**CLAIMS**

1. An information retrieval apparatus for searching a set of information items and displaying the results of the search, the information items each having a set  
5 of characterising information features, the apparatus comprising  
a search processor operable to search the information items in accordance with a user defined characterising information feature and to identify information items having characterising information features corresponding to that user defined characterising information feature,  
10 a mapping processor operable to generate data representative of a map of information items from a set of information items identified in the search, the map providing the identified information items with respect to positions in an array in accordance with a mutual similarity of the information items, similar information items mapping to similar positions in the array,  
15 a graphical user interface for displaying a representation of at least some of the identified information items, and  
a user control for selecting an identified information item, wherein the search processor is operable to refine the search to identify information items relating to the selected information item.  
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2. An information retrieval system as claimed in Claim 1, wherein the characterising information features include metadata describing the content or attributes of the information items.
- 25 3. An information retrieval system as claimed in Claims 1 or 2, wherein the user control is operable to select the identified information item in accordance with metadata associated with the identified item, and the search processor is operable to search the set of information items for information items including the same and/or similar metadata.
- 30 4. An information retrieval apparatus as claimed in any preceding Claim, wherein the search processor is operable to search the set of information items in

relation to the user selected identified information item by identifying information items from the set which are within a predetermined number of positions within the array from the user identified information item.

5           5.       An information retrieval apparatus as claimed in any preceding Claim, wherein the user control is operable to provide a user with a facility for selecting a plurality of identified information items and to specify a search relationship between the identified items in accordance with Boolean logic.

10           6.       An information retrieval apparatus as claimed in Claim 5, wherein if the Boolean operator is an OR, then the search processor is operable to identify information items within a predetermined number of array positions from each array position identified by each of the user selected metadata items, or, if the Boolean operator is an AND, then the search processor is operable to combine the metadata  
15       corresponding to each of the user selected information items, and to identify information items within a predetermined number of array positions from an array position identified by the combined metadata, or, if the Boolean operator is a NOT, then the search processor is operable to exclude information items within a predetermined number of array positions from an array position identified by the user  
20       selected metadata item.

             7.       An information retrieval apparatus as claimed in any preceding Claim, wherein the characterising information features include data representative of video images, and the user control provides a facility for selecting a video frame associated  
25       with an information item, the search processor being operable to search the information items by comparing the selected video image frame with a representative image frame associated with each image item.

             8.       An information retrieval apparatus as claimed in Claim 7, wherein the  
30       representative image frame is selected from the frames of the video images associated with an information item according to an average of the colour information content of the image video frames, associated with said information item.

9. An information retrieval apparatus as claimed in Claims 7 or 8, wherein the search processor is operable to search for information items relating to the selected representative video image frame by identifying information items having  
5 representative video images having the same and/or similar colour information.

10. An information retrieval apparatus as claimed in Claims 7, 8 or 9, wherein the user control is operable to provide a user with a facility for selecting a plurality of video image frames from identified information items to form a search  
10 query and to specify a search relationship between the selected video frames in accordance with a Boolean logical operator.

11. An information retrieval apparatus as claimed in Claim 10, wherein if the Boolean operator is an OR, then the search processor is operable to identify  
15 information items having a representative image frame with colour histogram which is within a predetermined distance of each of the user selected image frames, or, if the Boolean operator is an AND, then the search processor is operable to combine the colour histograms for each of the user selected information items, and to identify  
20 information items having a representative image frame with a colour histogram which is within a predetermined distance of the combined colour histogram, or, if the Boolean operator is a NOT, then the search processor is operable to exclude information items having a representative video image frame with a colour histogram which is within a predetermined distance of the user selected video image frame.

25 12. An information retrieval apparatus as claimed in any preceding Claim, wherein the characterising information features include data representative of audio signals, and the user control provides a facility for selecting information items to form a search query in accordance with at least one of the type of the audio data or audio metadata describing the content or attributes of the audio signals.

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13. An information retrieval apparatus as claimed in Claim 12, wherein the search processor is operable to search for information items relating to the selected

audio data by identifying information items having the same and/or similar audio data.

14. An information retrieval apparatus as claimed in Claims 12 or 13,  
5 wherein the user control is operable to provide a user with a facility for selecting a plurality of audio data from identified information items to form a search query and to specify a search relationship between the selected audio data in accordance with a Boolean logical operator.

10 15. An information retrieval apparatus as claimed in Claim 14, wherein if the Boolean operator is an OR, then the search processor is operable to identify information items within a predetermined number of array positions from each array position identified by a feature vector formed from the audio metadata associated with each selected information item, or, if the Boolean operator is an AND, then the search  
15 processor is operable to combine the audio metadata corresponding to each of the user selected information items, and to identify information items within a predetermined number of array positions from an array position identified by a feature vector corresponding to the combined audio metadata, or, if the Boolean operator is a NOT, then the search processor is operable to exclude information items within a  
20 predetermined number of array positions from an array position identified by a feature vector associated with the user selected information item.

16. A method of searching a set of information items and displaying the results of the search, the information items each having a set of characterising  
25 information features, the method comprising

searching the information items in accordance with a user defined characterising information feature,

generating data representative of a map of information items from a set of information items identified in the search, the map providing the identified  
30 information items with respect to positions in an array in accordance with a mutual similarity of the information items, similar information items mapping to similar positions in the array,

identifying positions in the array for information items having characterising information features corresponding to said user defined information feature,  
displaying a representation of at least some of the identified items,  
selecting an identified information item,  
5 refining the search to identify information items relating to the selected information item.

17. A method of searching as claimed in Claim 16, wherein the characterising information features include metadata describing the content or  
10 attributes of the information items.

18. A method of searching as claimed in Claim 16 or 17, wherein the selecting the identified information item comprises  
selecting the identified information item in accordance with metadata  
15 associated with the identified item, and  
searching the set of information items for information items including the same and/or similar metadata.

19. A method of searching as claimed in Claim 18, wherein the searching  
20 the identified information item comprises  
searching the set of information items in relation to metadata associated with the user selected information item by identifying information items from the set which are within a predetermined number of positions from the user identified information item corresponding to the user selected metadata.

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20. A method of searching as claimed in any of Claims 16 to 19, wherein the selecting the identified information item comprises  
providing a user with a facility for selecting a plurality of identified information items, and  
30 specifying a search relationship between the identified items in accordance with Boolean logic.



21. A method of searching as claimed in Claim 20, wherein the searching the identified information items comprises

if the Boolean operator is an OR, identifying information items within a predetermined number of array positions from an array position identified by each of  
5 the user selected metadata items, or,

if the Boolean operator is an AND, combining the metadata corresponding to each of the user selected information items, and identifying information items within a predetermined number of array positions from an array position identified by each of the user selected metadata items, or,

10 if the Boolean operator is a NOT, excluding information items within a predetermined number of array positions from an array position identified by the user selected metadata item.

22. A method of searching as claimed in any of Claims 16 to 22, wherein  
15 the characterising information features include data representative of video images, and the selecting the identified information items comprises

providing a facility for selecting information items in accordance with a representative image frame from the video images associated with each of the information items, and

20 searching for information items relating to the selected representative video image frame by identifying information items having representative video images having the same and/or similar colour information.

23. A method of searching as claimed in any of Claims 16 to 22, wherein  
25 the characterising information features include data representative of audio signals, and the selecting the identified information items comprises

providing a facility for selecting information items in accordance with at least one of the type of the audio data or audio metadata describing the content or attributes of the audio signals, and

30 searching for information items relating to the selected audio data by identifying information items having the same and/or similar audio data.

24. A graphical user interface for specifying a search query for searching a set of information items, the information items each having a set of characterising information features, the interface comprising

5 rows of fields, each field providing a facility for selecting information items from the set of information items, each row defining a search condition for forming a search query, in accordance with a different type of characterising information feature associated with said row.

25. A graphical user interface as claimed in Claim 24, wherein a plurality  
10 of information items may be selected for each row, and if more than one information feature is provided in each row, then the conditions for the search query are combined in accordance with user specified Boolean operators.

26. A graphical user interface as claimed in Claim 24 or 25, wherein the  
15 characterising information features are at least one of metadata, video images and audio metadata.

27. An information retrieval apparatus substantially as hereinbefore  
described with reference to the accompanying drawings.  
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28. An information retrieval method substantially as hereinbefore  
described with reference to the accompanying drawings.

29. Computer software having program code for carrying out a method  
25 according to any one of claims 16 to 23.

30. A providing medium for providing program code according to claim  
29.

30 31. A medium according to claim 30, the medium being a storage medium.

32. A medium according to claim 31, the medium being a transmission medium.